US007697521B2

(12) **United States Patent**
Jang et al.

(10) **Patent No.: US 7,697,521 B2**
(45) **Date of Patent: *Apr. 13, 2010**

(54) **METHOD OF CONTROLLING CONNECTION BETWEEN NODES IN DIGITAL INTERFACE**

(75) Inventors: **Chang Hwan Jang**, Kyonggi-do (KR); **Jae Yoon Jeong**, Seoul (KR)

(73) Assignee: **LG Electronics Inc.**, Seoul (KR)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/833,579**

(22) Filed: **Aug. 3, 2007**

(65) **Prior Publication Data**

US 2007/0294445 A1 Dec. 20, 2007

Related U.S. Application Data

(63) Continuation of application No. 11/451,444, filed on Jun. 13, 2006, now Pat. No. 7,289,482, which is a continuation of application No. 09/644,301, filed on Aug. 23, 2000, now Pat. No. 7,068,674.

(30) **Foreign Application Priority Data**

Aug. 23, 1999 (KR) 35030/1999

(51) **Int. Cl.**
H04L 12/28 (2006.01)
H04W 4/00 (2006.01)
G06F 13/42 (2006.01)

(52) **U.S. Cl.** **370/389**; 370/341; 370/402; 710/105

(58) **Field of Classification Search** 370/230–235, 370/252–257, 236–338, 248–341, 357–392, 370/402–419; 709/223–249; 710/61–62, 710/105–110, 240–241, 117–124, 5–16, 710/301–315
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

4,972,355 A 11/1990 Mullins

(Continued)

FOREIGN PATENT DOCUMENTS

JP 10-327173 8/1998

(Continued)

Primary Examiner—Man Phan
(74) *Attorney, Agent, or Firm*—Fish & Richardson P.C.

(57) **ABSTRACT**

A method of controlling connection between nodes in a digital interface whereby a first node that is a master node determines a second node to be the master and controls a point-to-point connection or a broadcast connection to another node. The first node having the display device determines the second node to be the master in accordance with a user selection, and transmits a connection command of a predetermined format for transmitting a data stream to the second node. The second node determined as the master in accordance with the transmitted connection command of the predetermined format is allocated with a channel and a bandwidth from an isochronous resource manager (IRM), and performs a point-to-point connection between the second node and the first node to transit the data stream. Thus, the transmission/reception, reproduction, and control of the data stream of the program can be smoothly performed.

9 Claims, 2 Drawing Sheets

Opcode	PIP CONNECTION(0x28)
operand[0]	Subfunction
operand[1]	Connection
operand[2]	Bandwidth
operand[3]	Source Node_ID
operand[4]	
operand[5]	Source Channel Number
operand[6]	Output PCR Number
operand[7]	Destination Node_ID
operand[8]	
operand[9]	Destination Channel Number
operand[10]	Input PCR Number

U.S. PATENT DOCUMENTS

5,329,308	A	7/1994	Binns	
5,467,348	A	11/1995	Fujii	
5,481,542	A	1/1996	Logston	
5,574,973	A	11/1996	Borth	
5,671,216	A	9/1997	Subasingha	
5,671,225	A	9/1997	Hooper	
5,680,399	A	10/1997	Totzke	
5,710,972	A	1/1998	Lin	
5,825,752	A	10/1998	Fujimori	
5,842,127	A	11/1998	Pashtan	
5,862,482	A	1/1999	Beesley	
5,883,621	A	3/1999	Iwamura	
5,905,522	A	5/1999	Lawler	
5,963,557	A	10/1999	Eng	
6,073,197	A	6/2000	Stewart	
6,240,553	B1	5/2001	Son	
6,243,707	B1	6/2001	Humpleman	
6,381,697	B1 *	4/2002	Kawamura	713/162
6,389,496	B1	5/2002	Matsuda	
6,434,117	B1	8/2002	Momona	
6,452,935	B1	9/2002	Gibbs	
6,470,029	B1	10/2002	Shimizu	
6,487,408	B1	11/2002	Tokuyoshi	
6,493,552	B1	12/2002	Hicks	
6,522,660	B1	2/2003	Mukaihara	
6,539,450	B1	3/2003	James	
6,563,809	B1	5/2003	Proctor, Jr.	
6,567,664	B1	5/2003	Bergenwall	
6,629,173	B2 *	9/2003	Iijima	710/107
6,643,258	B1	11/2003	Ise	
6,665,020	B1	12/2003	Stahl	
6,678,769	B1 *	1/2004	Hatae et al.	710/105
6,690,648	B2 *	2/2004	Niida et al.	370/236
6,704,932	B1 *	3/2004	Matsunaga et al.	725/126
6,751,687	B1 *	6/2004	Sato et al.	710/62
6,757,765	B1	6/2004	Fukushima	
6,788,653	B1 *	9/2004	Sakamoto et al.	370/282
6,804,250	B2 *	10/2004	Hatae et al.	370/419
6,842,814	B1 *	1/2005	Kim et al.	710/305
6,885,631	B1 *	4/2005	Kim et al.	370/216
6,904,033	B1	6/2005	Perras	
6,947,422	B1 *	9/2005	Ichimura et al.	370/392
6,950,408	B1 *	9/2005	Domon et al.	370/257
6,993,606	B1 *	1/2006	Takaku et al.	710/61
7,002,964	B1 *	2/2006	Ohnishi et al.	370/395.2
7,003,606	B2 *	2/2006	Fukushima et al.	710/107
7,016,303	B1 *	3/2006	Sakamoto et al.	370/235
7,042,896	B1 *	5/2006	Kim et al.	370/461
7,058,746	B1 *	6/2006	Kaibuki	710/305
7,123,621	B1 *	10/2006	Niida et al.	370/402
7,145,872	B1 *	12/2006	Kim	370/230
7,187,655	B1 *	3/2007	Sato et al.	370/252
2003/0172201	A1 *	9/2003	Hatae et al.	710/8
2007/0291726	A1 *	12/2007	Jang et al.	370/341

FOREIGN PATENT DOCUMENTS

WO	WO 98/43391	1/1998

* cited by examiner

FIG.1
Related Art

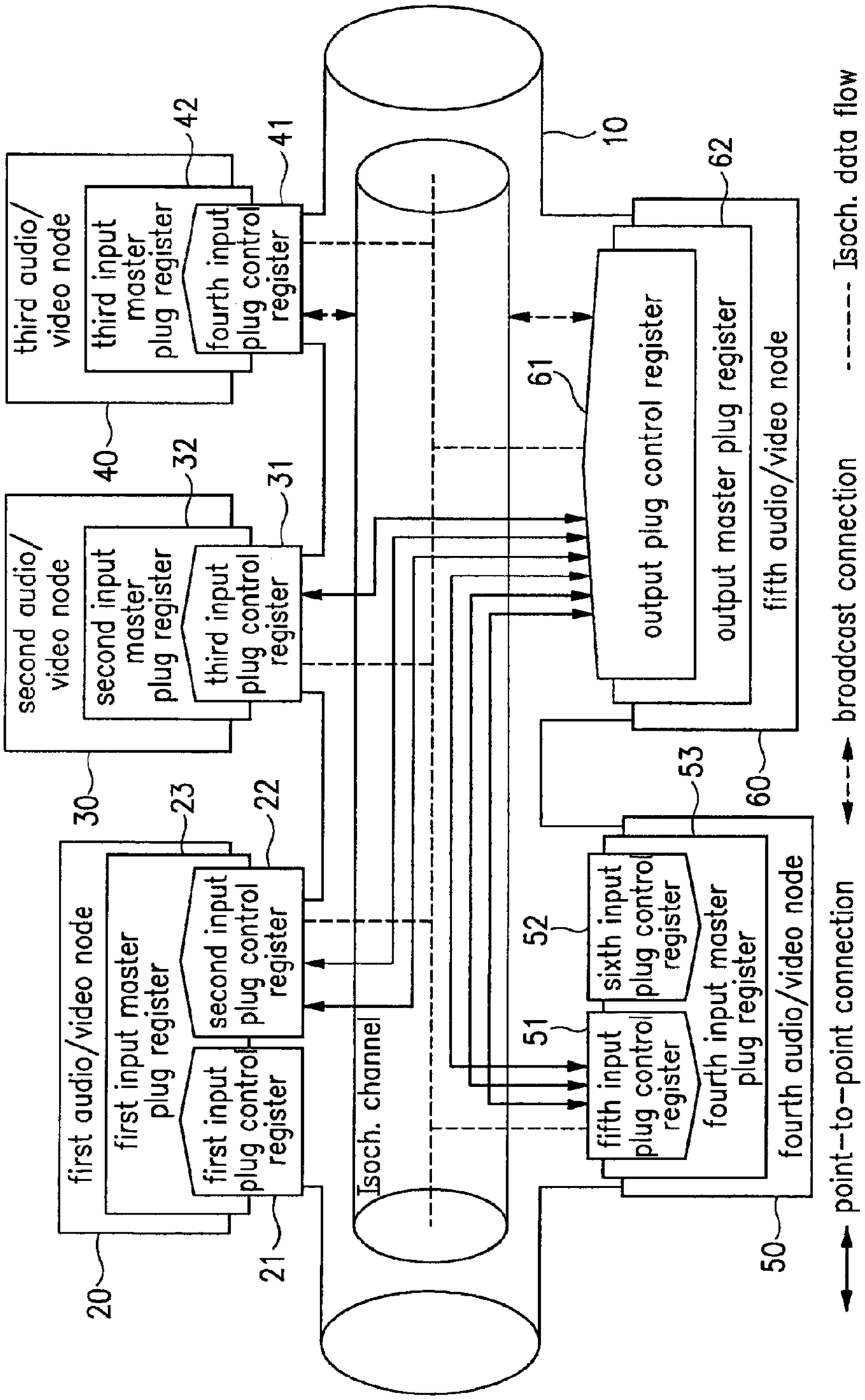

FIG.2

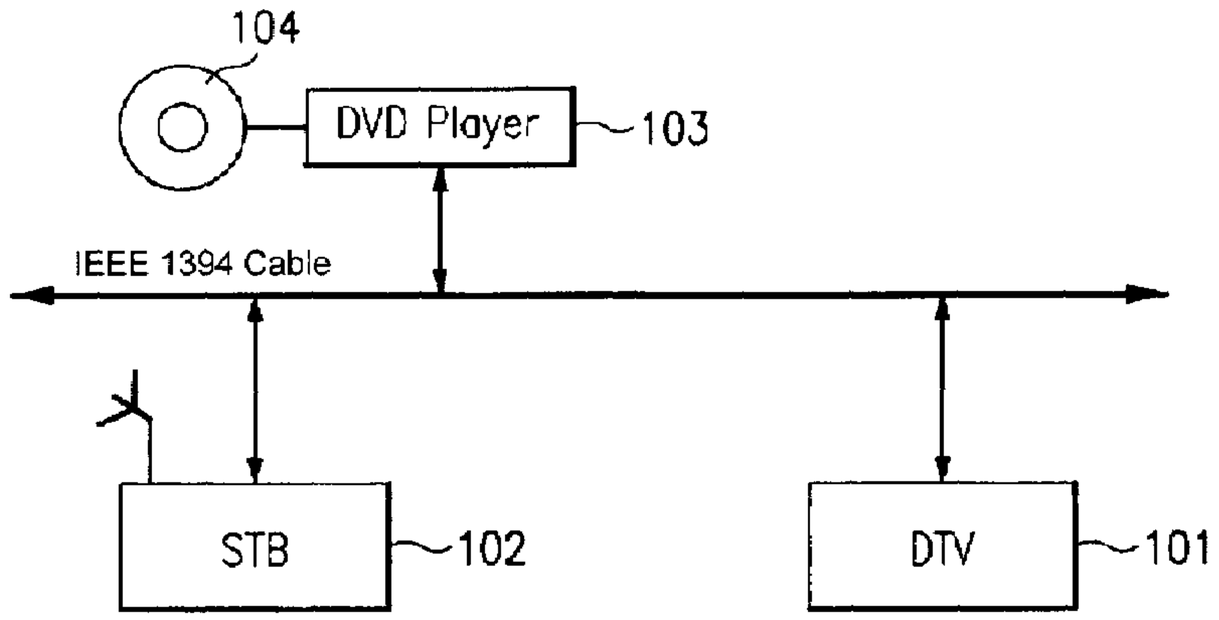

FIG.3A

Opcode	PIP CONNECTION(0x28)
operand[0]	Subfunction
operand[1]	Connection
operand[2]	Bandwidth
operand[3] operand[4]	Source Node_ID
operand[5]	Source Channel Number
operand[6]	Output PCR Number
operand[7] operand[8]	Destination Node_ID
operand[9]	Destination Channel Number
operand[10]	Input PCR Number

FIG.3B

Subfunction	Value	Description
Point-to-Point	0x01	command to connect by Point-to Point connection
Broadcast	0x10	command to connect by Broadcast Bonnection

METHOD OF CONTROLLING CONNECTION BETWEEN NODES IN DIGITAL INTERFACE

CROSS-REFERENCE TO RELATED APPLICATION

This application is a continuation of prior U.S. application Ser. No. 11/451,444, filed Jun. 13, 2006, now U.S. Pat. No. 7,289,482, which is a continuation of U.S. application Ser. No. 09/644,301, filed Aug. 23, 2000, now U.S. Pat. No. 7,068,674, which claims priority to Korea Serial No. P1999-35030 filed on Aug. 23, 1999. The disclosures of the prior applications are considered part of (and are incorporated by reference in) the disclosure of this application.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to a digital interface, and more particularly to a method of controlling connection between nodes in a digital interface.

2. Description of the Related Art

FIG. **1** illustrates a connection state of a conventional 1394 system connected between nodes. Referring to FIG. **1**, the conventional digital interface includes first and second input plug control registers **21** and **22** for inputting/outputting connection information between nodes connected to a 1394 serial bus **10** in accordance with control signals of an application node (not illustrated), a first audio/video node **20** comprising a first input master plug register **23**, a third input plug control register **31** for inputting/outputting connection information between nodes connected to the 1394 serial bus **10** in accordance with control signals of the application node, a second audio/video node **30** comprising a second input master plug register **32**, a fourth input plug control register **41** for inputting/outputting connection information between nodes connected to the 1394 serial bus **10** in accordance with control signals of the application node, a third video/audio node **40** comprising a third input master plug register **42**, fifth and sixth plug control registers **51** and **52** for inputting/outputting connection information between nodes connected to the 1394 serial bus **10** in accordance with control signals of the application node, a fourth audio/video node **50** comprising a fourth input master plug register **53**, an output plug control register **61** for inputting/outputting connection information between nodes connected to the 1394 serial bus **10** in accordance with control signals of the application node, and a fifth audio/video node **60** comprising an output master plug register **62**.

The method of controlling connection between nodes for the conventional digital interface as constructed above will be explained in detail with reference to accompanying drawings.

The application node is allocated with a channel for transmitting isochronous data from the fifth audio/video node **60** to the first audio/video node **20** through a point-to-point connection or broadcast connection, and writes in the same format the output plug control register in the fifth audio/video node **60** and the input plug control register in the first audio/video node **20** in the output plug control register **61** and the second input plug control register **22**.

Thereafter, the application node writes "1" in an on-line bit of the output plug control register **61** in the fifth audio/video node **60** and an on-line bit of the second input plug control register **22** to transmit the isochronous data.

Also, the application node writes in the same format the output plug control register in a point-to-point connection counter or a broadcast connection counter of the output plug control register **61** in the fifth audio/video node **60**.

Then, the isochronous data is transmitted from the fifth audio/video node **60** to the first audio/video node **20** through the channel.

Thus, transmission of the isochronous data from the fifth audio/video node **60** to the second and fourth audio/video nodes **30** and **40** is performed through the above-described process.

According to the conventional method of controlling connection between nodes in a digital interface, however, since no command for connection the nodes to the digital interface is provided, the transmission/reception, reproduction and control of a data stream of a predetermined program cannot be smoothly performed.

SUMMARY OF THE INVENTION

Accordingly, the present invention is directed to a method of controlling connection between nodes in a digital interface that substantially obviates one or more of the problems due to limitations and disadvantages of the related art.

An object of the present invention is to provide a method of controlling connection between nodes in a digital interface whereby a first node that is a master node determines a second node as a master, and a point-to-point connection or a broadcast connection to another third node is controlled through the second node.

Additional features and advantages of the invention will be set forth in the description which follows, and in part will be apparent from the description, or may be learned by practice of the invention. The objectives and other advantages of the invention will be realized and attained by the structure particularly pointed out in the written description and claims thereof as well as the appended drawings.

To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described, the method of controlling connection between nodes in a digital interface comprises the steps of a first node that is a master having a display device determining a second node to be a master in accordance with a user selection and transmitting a connection command of a predetermined format for transmitting a data stream, and the second node determined as the master in accordance with the transmitted connection command of the predetermined format being allocated with a channel and a bandwidth from an isochronous resource manager (IRM), performing a point-to-point connection between the second node and the first node, and transmitting the data stream.

The connection command of the predetermined format may be composed of a subfunction region representing whether the connection is the point-to-point connection or a broadcast connection, a connection region representing whether to make or cut off the connection, a source node identification (ID) region representing a source node ID of the node which transmits the data stream, and a destination node ID region representing a destination node ID of the node which receives the data stream.

The subfunction region may be set to the broadcast connection from the second node to the first node or another node to enable the transmission of the data stream.

At the data stream transmitting step, the second node may transmit a response of a predetermined format which corresponds to the connection command of the predetermined format to the first node.

The format of the response may be the same as the format of the connection command.

The format of the response may further include a bandwidth region representing a bandwidth allocated from the

source node, a source channel number region representing a source channel number allocated from the source node, an output plug control register number region representing an output plug control register (PCR) number of the source node, a destination channel number region representing a destination channel number of the destination node for receiving the data stream, and an input PCR number region representing an input PCR number of the destination node.

According to another aspect of the present invention, the first node that is the master having the display device determines the second node to be the master in accordance with the user selection to perform the point-to-point connection to a third node, and transmits the connection command of the predetermined format for transmitting the data stream. The second node is allocated with the channel and the bandwidth from the isochronous resource manager (IRM), and then performs the point-to-point connection between the second node itself and the third node to enable transmission of the data stream.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are included to provide a further understanding of the invention and are incorporated in and constitute a part of this specification, illustrate embodiments of the invention and together with the description serve to explain the principles of the invention:

In the drawings:

FIG. **1** is a view illustrating a connection state of a conventional 1394 system connected between nodes.

FIG. **2** is a block diagram illustrating the construction of a system to which the method of controlling connection between nodes in a digital interface according to an embodiment of the present invention is applied.

FIGS. **3***a* and **3***b* are views illustrating a connection command form according to the method of controlling connection between nodes in a digital interface according to an embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Reference will now be made in detail to the method of controlling connection between nodes in a digital interface according to a preferred embodiment of the present invention, examples of which are illustrated in the accompanying drawings.

FIG. **2** is a block diagram illustrating the construction of a system to which the method of controlling connection between nodes in a digital interface according to an embodiment of the present invention is applied. The system comprises a digital television (DTV) **101**, a set-top box (STB) **102**, and a digital video disk (DVD) player **103**, and a disk **104**.

FIGS. **3***a* and **3***b* are views illustrating a connection command form according to the method of controlling connection between nodes in a digital interface according to an embodiment of the present invention. As shown in FIG. **3***a*, the connection command is composed of a subfunction region representing whether the connection is a point-to-point connection or a broadcast connection, a connection region representing whether to make or cut off the connection, a source node identification (ID) region representing a source node ID of the node which transmits a data stream, and a destination node ID region representing a destination node ID of the node which receives the data stream, a bandwidth region representing a bandwidth allocated from the source node, a source channel number region representing a source channel number allocated from the source node, an output plug control register number region representing an output plug control register (PCR) number of the source node, a destination channel number region representing a destination channel number of the destination node for receiving the data stream, and an input PCR number region representing an input PCR number of the destination node. The subfunction region in FIG. **3***a* is illustrated in detail in FIG. **3***b*.

The method of controlling connection between nodes in a digital interface as constructed above will be explained in detail with reference to the accompanying drawings.

First, if a user selects the DTV **101** or the STB **102** which are displayed on a screen in order to view a specified program received in the STB **102** through an IEEE 1394 cable as shown in FIG. **2**, the DTV **101** transmits the connection command of a predetermined format as shown in FIGS. **3***a* and **3***b* to the STB **102** with the STB **102** determined as a master to transmit the data stream.

Specifically, before transmitting the connection command to the STB **102**, the DTV **101** writes "0x01" in the subfunction region of the connection command as shown in FIGS. **3***a* and **3***b* to record the point-to-point connection, "0x00" in the connection region to record making of the connection, the node ID of the STB **102** in the source node ID region, and its own ID in the destination node ID region, respectively.

The node IDs of the nodes displayed on the screen are connected to the IEEE 1394 cable, and are stored in the DTV **101** when the power is turned on or the bus is reset.

Then, the STB **102** transmits a response corresponding to the connection command to the DTV **101** in accordance with the connection command transmitted from the DTV **101**.

Here, the STB **102** may transmit a command identical to the connection command as the response.

Also, before transmitting the connection command to the DTV **101** as the response, the STB **102** may additionally write the bandwidth allocated from the isochronous resource manager in the bandwidth region, the channel number allocated from the isochronous resource manager in the source channel number region, its own output plug control register (PCR) number in the output PCR number region, the allocated channel number in the destination channel number region, and the input PCR number of the DTV **101** in the input PCR number region, respectively.

Thereafter, the STB **102** is allocated with the channel and bandwidth from the isochronous resource manager (not illustrated), sets its own output plug control register and the input plug control register of the DTV **101** for the point-to-point connection as shown in FIG. **1**, and then transmits the data stream of the program to the DTV **101** to display the data stream on the screen.

Here, the DTV **101** writes "0x10", which means the broadcast connection, in the subfunction region of the connection command, and transmits the connection command, so that the data stream of the program can be broadcast from the STB **102** to not only the DTV **101** itself but also other nodes connected to the IEEE 1394 cable.

If the display is completed, the DTV **101** transmits the connection command to the STB **102** after writing "0x01" in the subfunction region of the connection command to record the point-to-point connection, "0x10" in the connection region to record cut-off of the connection, the node ID of the STB **102** in the source node ID region, and its own node ID in the destination node ID region, so that the point-to-point connection or the broadcast connection can be released.

Also, if a user selects the DVD player **103** among the DTV **101**, STB **102**, and DVD player **103** displayed on the screen as shown in FIG. **2** to store the data stream of the program being viewed in the disk **104**, the DTV **101** transmits the connection command of a predetermined format as shown in FIGS. **3***a* and **3***b* to the DVD player **103** with the DVD player **103** determined as a master to store the data stream.

Specifically, before transmitting the connection command to the DVD player **103**, the DTV **101** writes "0x01" in the subfunction region of the connection command as shown in FIGS. **3***a* and **3***b* to record the point-to-point connection, "0x00" in the connection region to record the making of the connection, the node ID of the DTV **101** in the source node ID region, and the node ID of the DVD player **103** in the destination node ID region, respectively.

The node IDs of the nodes displayed on the screen are connected to the IEEE 1394 cable, and stored in the DTV **101** when the power is turned on or the bus is reset.

Then, the DVD player **103** transmits a response corresponding to the connection command to the DTV **101** in accordance with the connection command transmitted from the DTV **101**.

Here, the DVD player **103** may transmit a command identical to the connection command as the response.

Also, before transmitting the connection command to the DTV **101** as the response, the DVD player **103** may additionally write the bandwidth allocated from the isochronous resource manager in the bandwidth region, the channel number allocated from the isochronous resource manager in the source channel number region, the output plug control register (PCR) number of the DTV **101** in the output PCR number region, the channel number allocated from the isochronous resource manager in the destination channel number region, and its own input PCR number in the input PCR number region, respectively.

Thereafter, the DVD player **103** is allocated with the channel and bandwidth from the isochronous resource manager (not illustrated), sets its own input plug control register and the output plug control register of the DTV **101** for the point-to-point connection as shown in FIG. **1**, and then receives the data stream outputted from the DTV **101** to store the data stream in the disk **104**.

Here, the DTV **101** writes "0x10", which means the broadcast connection, in the subfunction region of the connection command, and transmits the connection command, so that the data stream of the program being viewed can be broadcast from itself to not only the DVD player **103** but also other nodes connected to the IEEE 1394 cable.

If the display is completed, the DTV **101** transmits the connection command to the DVD player **103** after writing "0x01" in the subfunction region of the connection command to record the point-to-point connection, "0x10" in the connection region to record cut-off of the connection, the node ID of the DTV **101** in the source node ID region, and the node ID of the DVD player **103** in the destination node ID region, so that the point-to-point connection or the broadcast connection can be released.

Also, if a user selects the STB **102** among the DTV **101**, STB **102**, and DVD player **103** displayed on the screen as shown in FIG. **2** to store the data stream of the program being received from the STB **102** through the IEEE 1394 cable in the disk **104**, the DTV **101** transmits the connection command of a predetermined format as shown in FIGS. **3***a* and **3***b* to the STB **102** with the STB **102** determined as a master to store the data stream.

Specifically, before transmitting the connection command to the STB **102**, the DTV **101** writes "0x01" in the subfunction region of the connection command as shown in FIGS. **3***a* and **3***b* to record the point-to-point connection, "0x00" in the connection region to record the making of the connection, the node ID of the STB **102** in the source node ID region, and the node ID of the DVD player **103** in the destination node ID region, respectively.

The node IDs of the nodes displayed on the screen are connected to the IEEE 1394 cable, and stored in the DTV **101** when the power is turned on or the bus is reset.

Then, the STB **102** transmits a response corresponding to the connection command to the DTV **101** in accordance with the connection command transmitted from the DTV **101**.

Here, the STB **102** may transmit a command identical to the connection command as the response.

Also, before transmitting the connection command to the DTV **101** as the response, the STB **102** may additionally write the bandwidth allocated from the isochronous resource manager in the bandwidth region, the channel number allocated from the isochronous resource manager in the source channel number region, its own output plug control register (PCR) number in the output PCR number region, the allocated channel number in the destination channel number region, and the input PCR number of the DVD player **103** in the input PCR number region, respectively.

Thereafter, the STB **102** is allocated with the channel and bandwidth from the isochronous resource manager (not illustrated), sets its own output plug control register and the input plug control register of the DVD player **103** for the point-to-point connection as shown in FIG. **1**, and then transmits the received data stream to the DVD player **103**.

Then, the DVD player **103** stores in the disk **104** the data stream of the program transmitted from the STB **102** through the point-to-point connection.

Here, the DTV **101** writes "0x10", which means the broadcast connection, in the subfunction region of the connection command, and transmits the connection command, so that the data stream of the program received from the STB **102** is not only stored in the disk **104** through the DVD player **103** but also broadcast to other nodes connected to the IEEE 1394 cable.

If the display is completed, the DTV **101** transmits the connection command to the STB **102** after writing "0x01" in the subfunction region of the connection command to record the point-to-point connection, "0x10" in the connection region to record cut-off of the connection, the node ID of the STB **102** in the source node ID region, and the node ID of the DVD player **103** in the destination node ID region, so that the point-to-point connection or the broadcast connection can be released.

Meanwhile, if a user selects the DVD player **103** among the DTV **101**, STB **102**, and DVD player **103** displayed on the screen as shown in FIG. **2** to reproduce through the DVD player **103** and view through the DTV **101** the data stream of the program stored in the disk **104**, the DTV **101** transmits the connection command of a predetermined format as shown in FIGS. **3***a* and **3***b* to the DVD player **103** with the DVD player **103** determined as a master to reproduce the data stream of the program stored in the disk **104** and transmit the data stream to the DTV **101** itself.

Specifically, before transmitting the connection command to the DVD player **103**, the DTV **101** writes "0x01" in the subfunction region of the connection command as shown in FIGS. **3***a* and **3***b* to record the point-to-point connection, "0x00" in the connection region to record the making of the connection, the node ID of the DVD player **103** in the source node ID region, and its own node ID in the destination node ID region, respectively.

The node IDs of the nodes displayed on the screen are connected to the IEEE 1394 cable, and stored in the DTV **101** when the power is turned on or the bus is reset.

Then, the DVD player **103** transmits a response corresponding to the connection command to the DTV **101** in accordance with the connection command transmitted from the DTV **101**.

Here, the DVD player **103** may transmit a command identical to the connection command as the response.

Also, before transmitting the connection command to the DTV **101** as the response, the DVD player **103** may additionally write the bandwidth allocated from the isochronous resource manager in the bandwidth region, the channel number allocated from the isochronous resource manager in the source channel number region, its own output plug control register (PCR) number in the output PCR number region, the allocated channel number in the destination channel number region, and the input PCR number of the DTV **101** in the input PCR number region, respectively.

Thereafter, the DVD player **103** is allocated with the channel and bandwidth from the isochronous resource manager, sets its own output plug control register and the input plug control register of the DTV **101** for the point-to-point connection as shown in FIG. **1**, and then reproduces the data stream of the program stored in the disk **104** to transmit the reproduced data stream to the DTV **101**.

Then, the DTV **101** displays on the screen the data stream of the program transmitted from the DVD player **103** through the point-to-point connection.

Here, the DTV **101** writes "0x10", which means the broadcast connection, in the subfunction region of the connection command, and transmits the connection command, so that the data stream of the program being reproduced and transmitted from the DVD player **103** can be not only displayed on the screen but also broadcast to other players connected to the IEEE 1394 cable.

If the display is completed, the DTV **101** transmits the connection command to the DVD player **103** after writing "0x01" in the subfunction region of the connection command to record the point-to-point connection, "0x10" in the connection region to record cut-off of the connection, the node ID of the DVD player **103** in the source node ID region, and its own node ID in the destination node ID region, so that the point-to-point connection or the broadcast connection can be released.

As described above, according to the method of controlling connection between nodes in a digital interface, one node among nodes connected to the digital interface, that is a master, determines another node to be the master, and controls a point-to-point connection or a broadcast connection among the nodes, so that the transmission/reception, reproduction, and control of the data stream of a certain program can be smoothly performed.

While the present invention has been described and illustrated herein with reference to the preferred embodiments thereof, it will be apparent to those skilled in the art that various modifications and variations can be made therein without departing from the spirit and scope of the invention. Thus, it is intended that the present invention covers the modifications and variations of this invention that come within the scope of the appended claims and their equivalents.

What is claimed is:

1. A method for controlling a connection through a serial bus, comprising:

receiving a control command that identifies a destination node and describes a requested state of the connection, from a source node, the requested state of connection including a command indicating whether the destination node is operated to be connected or disconnected with the serial bus; and

transmitting, based on receiving the control command, a response command describing a current state of the connection, to the source node, the response command including identification information of the source node.

2. The method of claim **1**, wherein the control command is received at the destination node, and wherein the response command is transmitted from the destination node.

3. The method of claim **1**, wherein the control command identifies the destination node using a unique node identifier.

4. The method of claim **3**, wherein the unique node identifier is a unique physical node identifier.

5. The method of claim **1**, wherein the requested state of connection comprises an enabled port connection state, a disabled port connection state, a connected connection state, or a disconnected connection state.

6. The method of claim **1**, wherein the control command or the response command comprise preformatted commands.

7. The method of claim **1**, wherein the destination node is a digital versatile disc (DVD) player, a digital television (DTV), or a set-top box (STB).

8. A device for controlling a connection through a serial bus, comprising:

means for receiving a control command that identifies a destination node and describes a requested state of the connection, from a source node, the requested state of connection including a command indicating whether the destination node is operated to be connected or disconnected with the serial bus; and

means for transmitting, based on receiving the control command, a response command describing a current state of the connection, to the source node, the response command including identification information of the source node.

9. A device for controlling a connection through a serial bus, comprising a master plug register configured to:

receive a control command that identifies a destination node and describes a requested state of the connection, from a source node, the requested state of connection including a command indicating whether the destination node is operated to be connected or disconnected with the serial bus; and

transmit, based on receiving the control command, a response command describing a current state of the connection, to the source node, the response command including identification information of the source node.

* * * * *